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EXAMINER	
SCHRANTZ, STEPHEN D	
ART UNIT	PAPER NUMBER
2177	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/637,442	KORSON ET AL.	
	Examiner	Art Unit	
	Steve Schrantz	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-2, 5, and 8-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5 and 8-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *19 February 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on Feb. 19, 2003 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 5, 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (U.S. Patent 5,870,765) and Aratow et al. (U.S. Patent 6,199,008) and Arkov et al. ("Aircraft Engine Condition Monitoring: Stochastic Identification and Neural Networks").

4. Bauer teaches independent claim 1 by the following:

"extracting data from said program database" at col. 11 lines 29-37;

"exporting said extracted data to said destination database" at col. 11 lines 49-55;

"after a successful export, updating an external time file with the date and time of said successful export" at col. 12 lines 4-7.

"wherein said data ... comprises compressed data" at Bauer col. 14 lines 11-13. Bauer teaches that compressed data is stored in the database.

Aratow teaches a portion of the remaining aspects of claim 1 by the following:

"wherein said data comprises... aircraft configuration data" at Aratow col. 5 lines 27-37;

"wherein said data comprises... aircraft input data" at Aratow col. 5 lines 27-37;

"wherein said data comprises... aircraft raw output data" at Aratow col. 5 lines 27-37 and col. 5 lines 44-63;

"wherein said data comprises... aircraft smoothed output data" at Aratow col. 5 lines 27-37 and col. 5 lines 44-63;

"wherein said data comprises... alert data" at Aratow col. 4 lines 34-39 and col. 4 lines 54-61;

"wherein said data comprises... initialization data" at Aratow Fig. 3E, Fig. 3f, and col. 5 lines 44-63;

Bauer teaches an invention that is capable of extracting modified information from one database and exporting it to another at col. 11 lines 23-57. He does not teach a specific type of information for which his invention can function. Aratow does teach a system in which an engine condition monitoring program is stored in a database at col. 5 lines 27-36. It would be obvious to one ordinarily skilled in the art at the time of the invention to combine Aratow's aircraft database tables with Bauer's database invention. By using Bauer's invention, the database will contain the most recent information without the transmission and time costs needed to send the entire contents of the database.

Arkov teaches the remaining aspects of independent claim 1 that Bauer and Aratow do not teach by the following:

"wherein said data comprises... engine configuration data" at page 296 left hand column. The engine input fuel flow [an input data] is also considered engine configuration data because the engine is configured for fuel flow.

"wherein said data comprises... engine input data" at page 296 left hand column. Arkov teaches the engine input fuel flow [input data] is used in an equation to determine data.

"wherein said data comprises... engine raw output data" at page 296 left hand column. Arkov teaches the engine high pressure shaft speed [output data] is used in an equation to determine data.

"wherein said data comprises... engine smoothed output data" at page 297. Arkov teaches the use of a probability function to monitor an engine. Arkov also teaches that the data is normalized, thus smoothing the output data. The data could also be smoothed through the statistical approaches that Arkov teaches at

Aratow teaches the storage of aircraft engine data in database at Fig. 3D. He does not specify that the engine data is concerned with engine condition monitoring. Arkov does teach an aircraft engine condition monitoring program as taught at page 295. It would have been obvious to one ordinarily skilled in the art at the time of the invention for engine monitoring data to be included in the aircraft data. By including the engine monitoring data, the pilots can be made aware of the current engine conditions through the inflight data being stored within the database.

The storage of the engine condition monitoring data would also allow the mechanics to perform proper maintenance of the engine after the flight. The engine data allows maintenance crews to make judgments on the condition of various engine components. By analyzing previous performance data, possible failures can be detected. When condition-monitoring systems predict a failure of a component, it is possible for the operator to plan the maintenance for the removal and inspection of the component. Planned maintenance saves labor costs in trying to locate faults and reduction in down-time by planned maintenance reduces operating costs further. The components that are known to be failing by the system can be removed and replaced before they completely fail and cause possible damage to other components. The system would also store all of the data in a database thus allowing the information to be stored together. Storing information in a database is well known in the art.

5. Bauer teaches dependent claim 2 by the following:

"extracting only data that is new or changed since the previous successful export" at col. 2 lines 7-12.

6. Bauer, Aratow, and Arkov teach independent claim 5 as explained by claim 1 above and by the following:

"reading an external time file to determine the last date and time that data was successfully exported to said destination database; searching said program database for data that is new or changed since said last successful export" at Bauer col. 13 lines 1-8;

"retrieving data found in searching said program database" at Bauer col. 11 lines 29-37;

"wherein said data comprises... engine configuration data" at page 296 left hand column. The engine input fuel flow [an input data] is also considered engine configuration data because the engine is configured for fuel flow.

"wherein said data comprises... aircraft configuration data" at Aratow col. 5 lines 27-37;

"wherein said data comprises... engine input data" at page 296 left hand column. Arkov teaches the engine input fuel flow [input data] is used in an equation to determine data.

"wherein said data comprises... engine raw output data" at page 296 left hand column. Arkov teaches the engine high pressure shaft speed [output data] is used in an equation to determine data.

"wherein said data comprises... engine smoothed output data" at page 297. Arkov teaches the use of a probability function to monitor an engine. Arkov also teaches that the data is normalized, thus smoothing the output data.

"wherein said data comprises... aircraft input data" at Aratow col. 5 lines 27-37;

"wherein said data comprises... aircraft raw output data" at Aratow col. 5 lines 27-37 and col. 5 lines 44-63;

"wherein said data comprises... aircraft smoothed output data" at Aratow col. 5 lines 27-37 and col. 5 lines 44-63;

"wherein said data comprises... alert data" at Aratow col. 4 lines 34-39 and col. 4 lines 54-61;

"wherein said data comprises... initialization data" at Aratow Fig. 3E, Fig. 3f, and col. 5 lines 44-63;

"wherein said data ... comprises compressed data" at col. 14 lines 11-13. Bauer teaches that compressed data is stored in the database.

"exporting said retrieved data to said destination database" at Bauer col. 11 lines 49-55;

"after a successful export, updating said external time file with the date and time of said successful export" at Bauer col. 12 lines 4-7.

7. Bauer in view of Aratow teaches dependent claim 8 by the following:

"said program database includes a flight data table" at Aratow col. 5 lines 44-52;

"... a number of engine data tables" at Aratow col. 5 lines 34-36;

"... aircraft data tables" at Aratow col. 5 lines 27-28;

"... step of searching said program database comprises searching said flight data table for flight data that is new or modified since said last successful export" at Bauer col. 11 lines 29-42.

8. Bauer teaches dependent claim 9 by the following:

"retrieving data from said engine data tables and said flight data tables for each flight data record found in said flight data table" at col. 1 lines 35-41.

9. Bauer teaches dependent claim 10 by the following:

"providing each of said engine data tables and said aircraft engine tables with an indication that data retrieval is completed after said flight data is retrieved from each table" at col. 11 line 63 to col. 12 line 7.

10. Bauer in view of Aratow teaches dependent claim 11 by the following:

"said program database includes a process indicator table" at Bauer col. 23 lines 18-35 and Bauer col. 24 lines 43-50;

"... a number of engine data tables" at Aratow col. 5 lines 34-36;

"... aircraft data tables" at Aratow col. 5 lines 27-28;

"... step of searching said program database comprises searching said process indicator table for reprocessed flight data that is changed since said last successful export" at Bauer col. 11 lines 29-42.

11. Bauer teaches dependent claim 12 by the following:

"retrieving data from said engine data tables and said aircraft data tables for each reprocessed flight data record found in said process indicator table" at col. 11 lines 23-37.

12. Bauer teaches dependent claim 13 by the following:

"providing each of said engine data tables and said aircraft engine tables with an indication that data retrieval is completed after said reprocessed flight data is retrieved from each table" at col. 11 line 63 to col. 12 line 7.

13. Bauer and Aratow teach dependent claim 14 by the following:

"... said program database includes an initialization data table" at Aratow Fig. 3E, Fig. 3F, and col. 5 lines 44-63;

"... said step of searching said program database comprises searching said initialization data table for initialization data that is changed since said last successful export" at Bauer col. 11 lines 29-42.

14. Bauer teaches dependent claim 15 by the following:

"retrieving initialization data found in said initialization data table" at col. 1 lines 35-41.

15. Bauer teaches dependent claim 16 by the following:

"providing said initialization data table with an indication that data retrieval is completed after said initialization data is retrieved from said initialization table" at col. 11 line 63 to col. 12 line 7.

16. Bauer and Aratow teach dependent claim 17 by the following:

"wherein said program database includes a compression data table" at application page 1 lines 21-24.

"... said step of searching said program database comprises searching said compression data table for compression data that is changed since said last successful export" at Bauer col. 11 lines 29-42. The compression data could easily be stored within the database.

17. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (U.S. Patent 5,870,765) and Aratow et al. (U.S. Patent 6,199,008) and Arkov et al. ("Aircraft

Engine Condition Monitoring: Stochastic Identification and Neural Networks") as applied to claim 1 above, and further in view of the applicants admission of prior art.

18. Bauer teaches dependent claim 18 by the following:

"retrieving compression data found in said compression data table" at col. 1 lines 35-41. Bauer teaches the retrieval of data found in the database.

Bauer does not refer to a compression data table. The applicant admits as prior art the ability of an engine conditioning monitoring system to save past reading as compression points. It would have been obvious to one ordinarily skilled in the art at the time of the invention to include a table of compression points with the database tables found in Aratow's invention. The compression points are simply past values recorded at different times. Arkov shows these values given over a period of time as shown in Fig. 1 of page 298. The points must be stored somewhere in order to create the graph. A compression points table would suffice in the storage of these data points. By saving the past history of the data, a mechanic, or some other person interested in the engine condition data, could view a report of the engine data at specific times. From these points, the user could determine the degradation of the parts to determine if the parts should be replaced.

19. Bauer teaches dependent claim 19 by the following:

"providing said compression data table with an indication that data retrieval is completed after said compression data is retrieved from said compression table" at col. 11 line 63 to col. 12 line 7.

Response to Arguments

20. Applicant's arguments, see pages 3-4 of paper #9, filed Feb. 2, 2003, with respect to the objections to the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn.

21. Applicant's arguments, see pages 4-6 of paper #9, filed Feb. 2, 2003, with respect to the rejection(s)of claim(s) 1-2, 5, and 8-16 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bauer et al. (U.S. Patent 5,870,765) and Aratow et al. (U.S. Patent 6,199,008) and Arkov et al. ("Aircraft Engine Condition Monitoring: Stochastic Identification and Neural Networks"). Arkov better explains the types of engine data that can be used in a monitoring system.

22. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

The applicant state that "neither Bauer et al. nor Aratow et al. teaches an engine monitoring program". Furthermore, the applicant states "they [Bauer and Aratow] do not teach the export of raw or smoothed engine output data" at page 5 of paper #9.

Bauer teaches the exporting of data in order to synchronize databases. Bauer does not teach that aircraft or engine data is stored in the databases. Bauer's system works for a variety of

data that is stored in a database. Aratow teaches that aircraft and engine data can be stored within a database. Because the aircraft and engine data can be stored in a database, it can also be exported by Bauer's system.

The examiner agrees that neither Aratow or Bauer teach an engine monitoring system. Aratow does teach a form of engine monitoring data [see Fig. 3D 60a-24 "current fuel consumption"]. The rejection has been modified to include Arkov's Engine Monitoring System.

Conclusion

References newly cited

Arkov et al. "Aircraft Engine Condition Monitoring: Stochastic Identification and Neural Networks"

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goebel et al. U.S. Patent 6,408,259

Hogg et al. U.S. Patent 5,408,412

Goebel et al. U.S. Patent 6,216,066

Pettigrew, James L. U.S. Patent 5,018,069

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Schrantz whose telephone number is (703) 305-7690. The examiner can normally be reached on Mon-Fri. 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications. The TC 2100 Customer Service number is (703) 306-5631.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Steve Schrantz
May 5, 2003

John E. Breene

JOHN BREENE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100